

# SERVICE MANUAL

DATSUN 240Z SPORTS  
MODEL S30 SERIES  
CHASSIS & BODY



**NISSAN MOTOR CO., LTD.**  
TOKYO, JAPAN

## SECTION BE

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**BE**

# BODY ELECTRICAL

## WIRING

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### ENGINE COMPARTMENT HARNESS

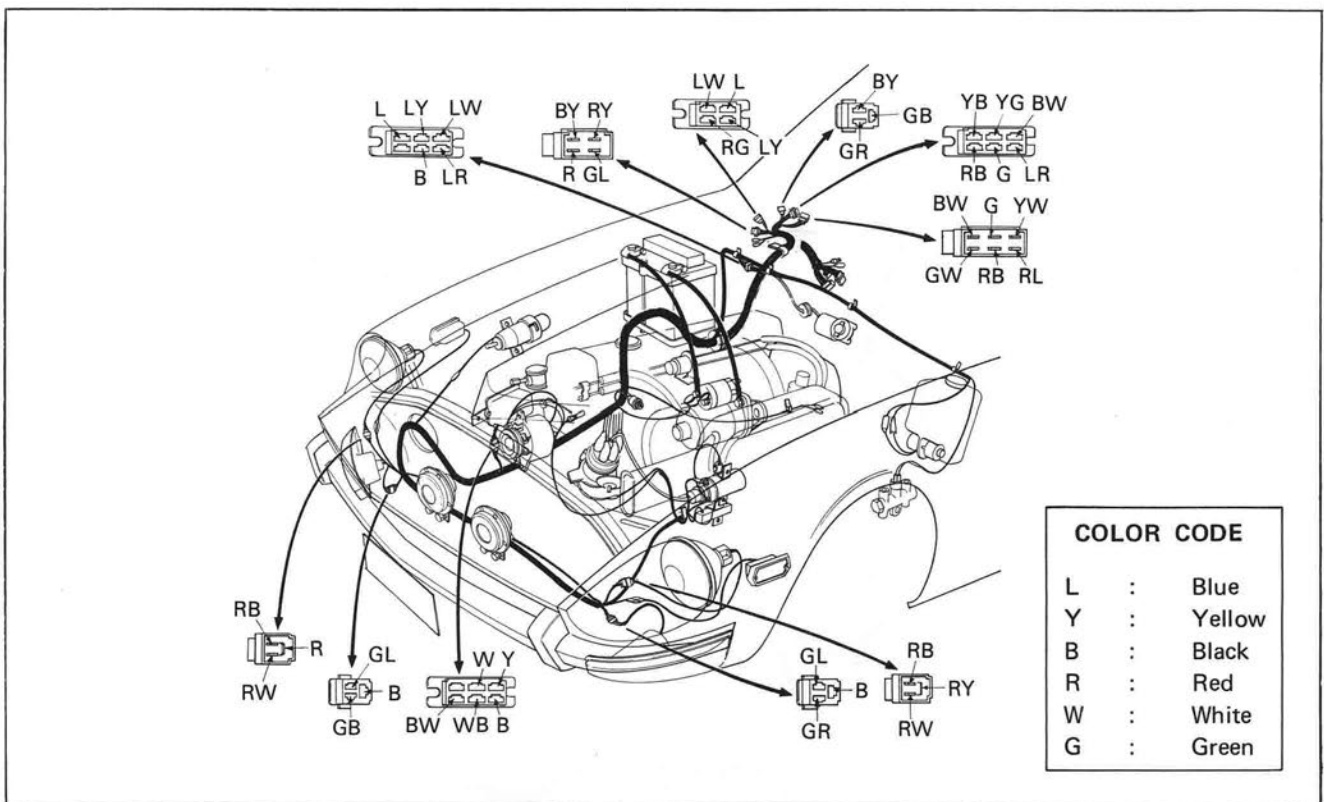


Fig. BE-1 Engine compartment harness

### Wiring instructions

1. Connect the engine compartment harness to the instrument harness at the bottom of instrument.
  2. Through the dash panel, extend the harness to the radiator support in the engine compartment along the right side of the hood ledge.
  3. Extend the harness to the left side of the body through the cross member top in lower front side of the radiator.
  4. Through the radiator support, connect the wire to the ignition coil along the left hand hood ledge.
- For details, see the above shown figure.

# BODY

## INSTRUMENT HARNESS

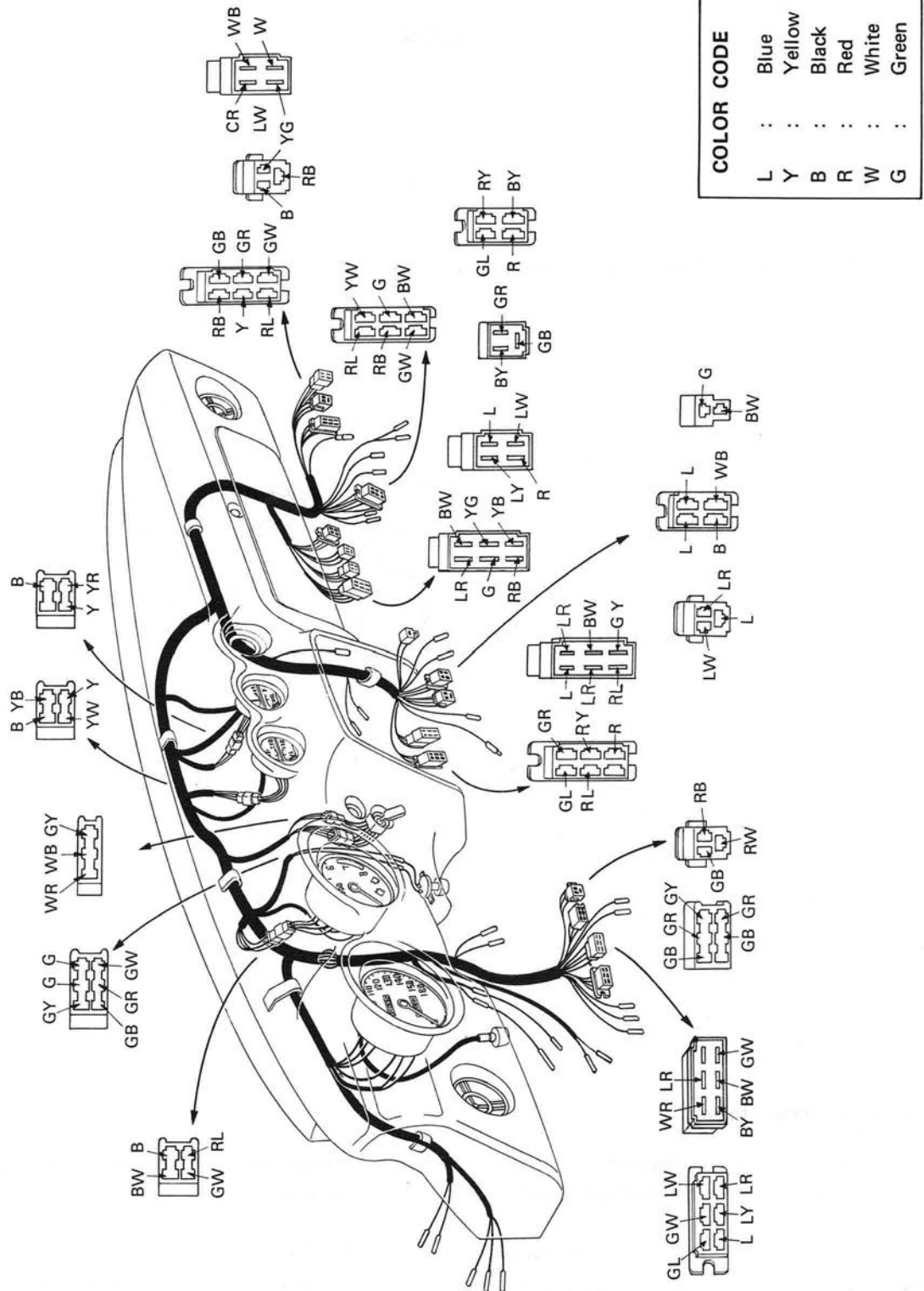


Fig. BE-2 Instrument harness

# BODY ELECTRICAL

## BODY HARNESS

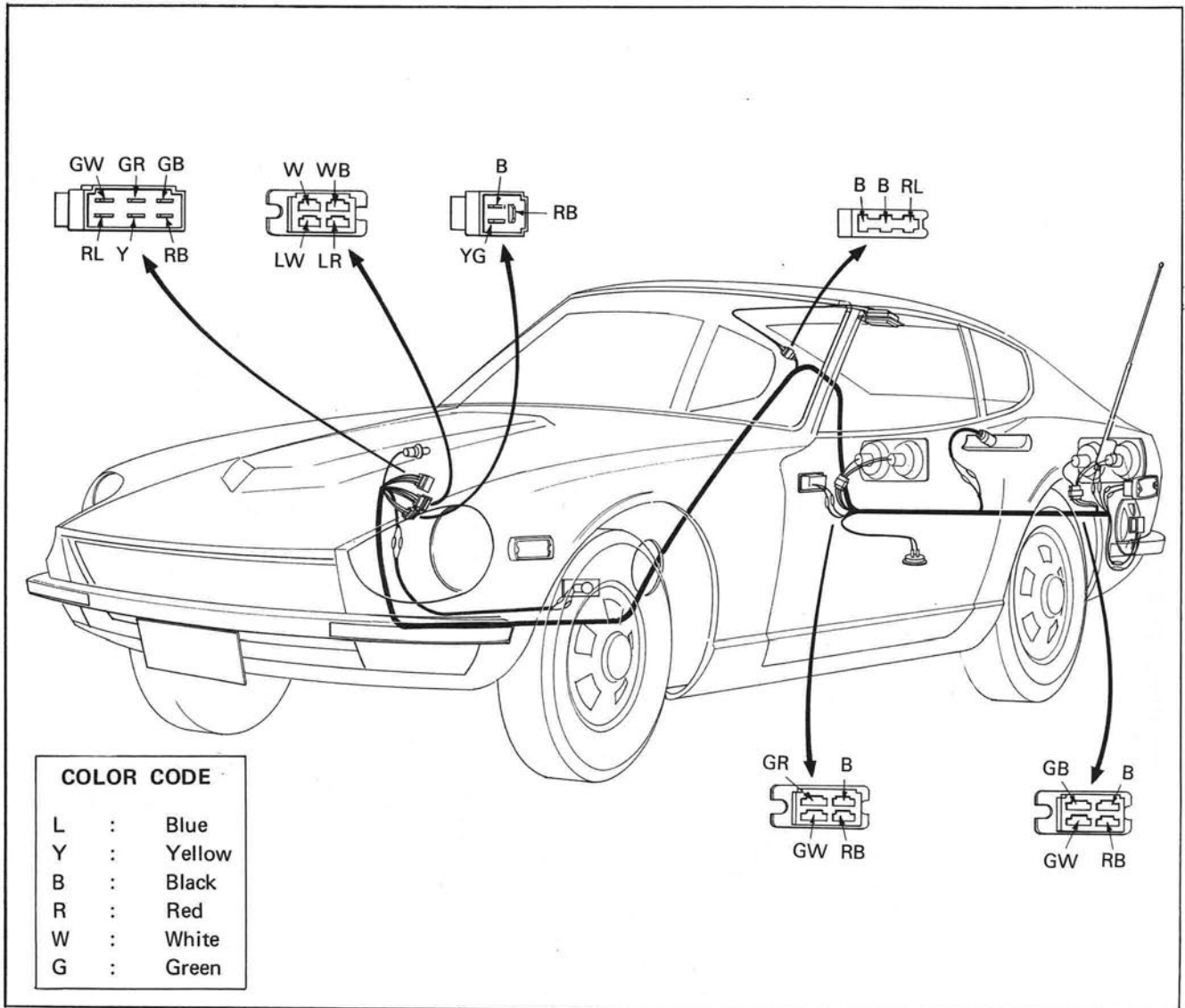


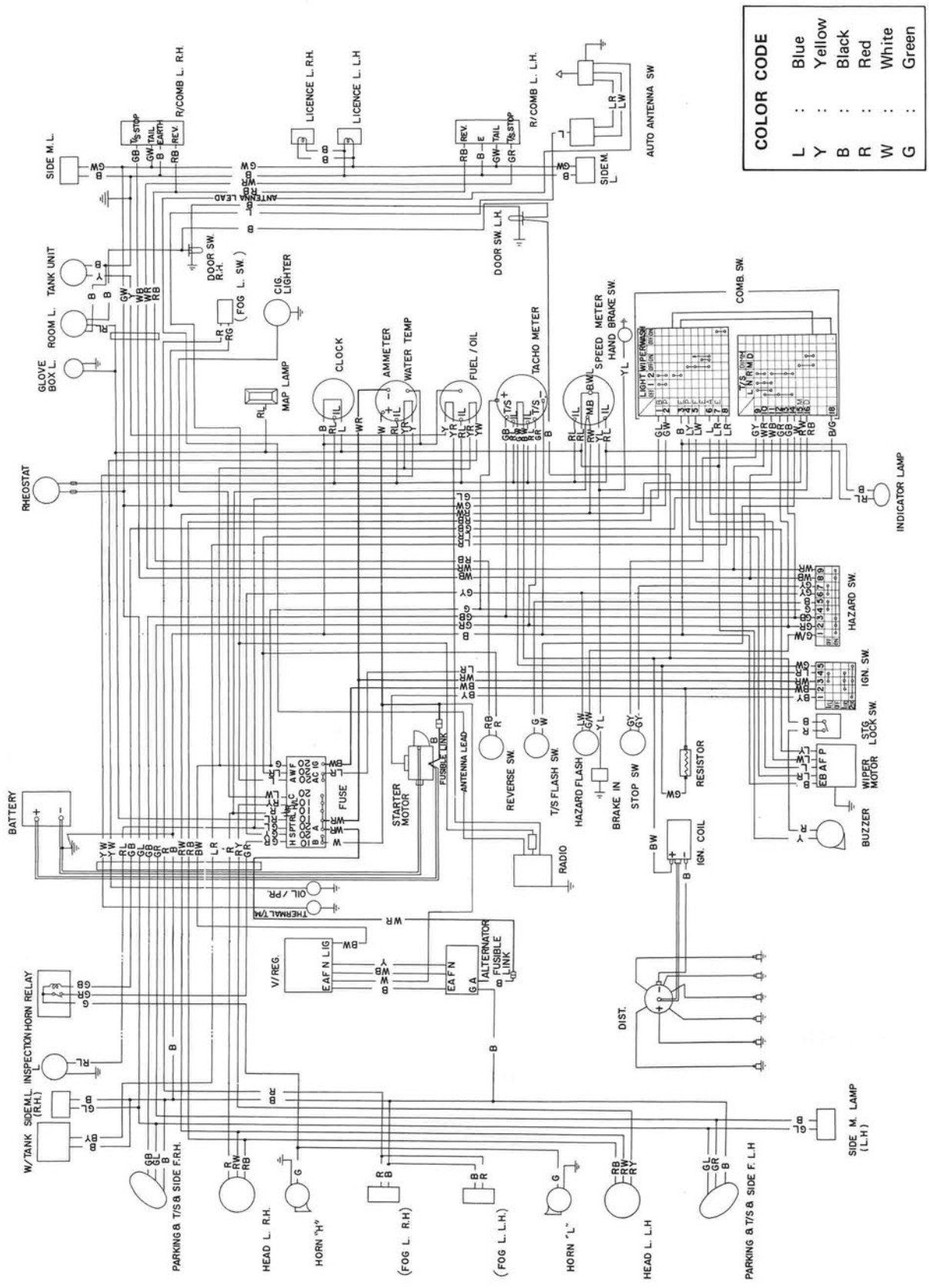
Fig. BE-3 Body harness

### Wiring instructions

1. Connect the body harness to the instrument harness at the bottom of the instrument panel.
2. Extend the harness to the wheel housing along the right side floor edge.
3. Extend the harness to the tail lamps by passing it between the inner panel and outer panel.
4. Branch the harness at rear side of the rear pillar, and extend the branched harness to the room lamp through the rear pillar.
5. Branch the harness at bottom of the tail lamp, and penetrating through the rear floor, extend to the fuel tank unit gauge along the inside of the right hand side member.
6. For details, see the above shown figure.

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## WIRING DIAGRAM



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## LAMPS

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### BULB SPECIFICATIONS

	Specification	Quantity	Color	Remarks
Head lamp unit	12V-50/40W	2	White	
Side clearance and turn signal lamp	12V-23W/7W	2	Amber	
Side marker lamp	12V-7.5W	4	Amber	Front side: 2 bulbs Rear side: 2 bulbs
License plate lamp	12V-7.5W	2	White	
Rear combination lamps				
Tail lamp	12V-7W	2	Red	
Stop (brake) lamp	12V-23W	2	Red	
Turn signal lamp	12V-23W	2	Amber	
Back up lamp	12V-23W	2	White	
Meter illuminating lamp	12V-3W	6	White	
Brake warning lamp	12V-3W	1	Red	
Turn signal pilot lamp	12V-3W	2	Green	Used also for hazard pilot lamp
Head lamp main (high) beam pilot lamp	12V-3W	1	Blue	
Hazard lamp	12V-23W	4	Amber	Used also for front and rear side clearance and turn signal lamp
Room lamp	12V-10W	1	Milky white	
Engine compartment inspection lamp	12V-8W	1	Milky white	
Glove box illumination lamp	12V-3W	1	White	
Clock illumination lamp	12V-3W	1	White	

# BODY

## HEAD LAMP

### 1. Removing the head lamp:

Remove four screws from the inside of the wheel opening.

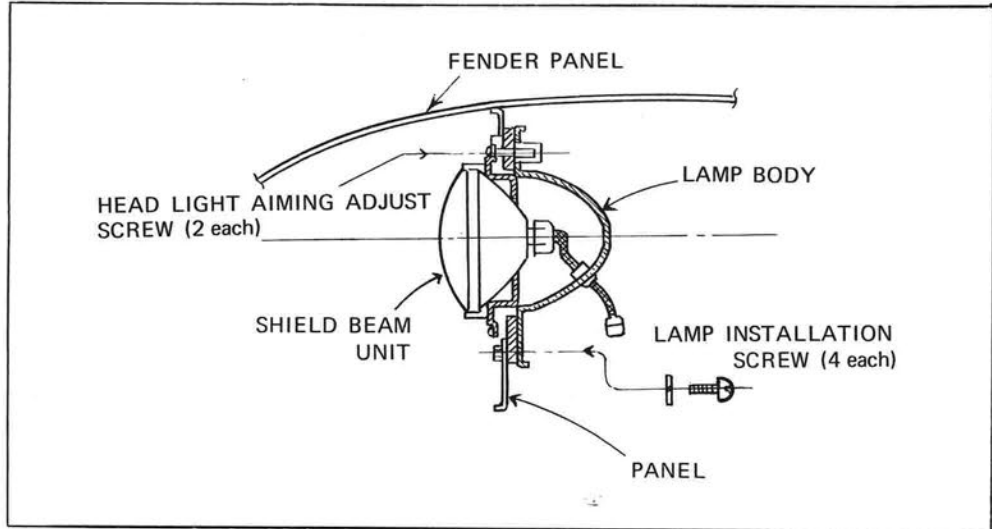


Fig. BE-4 Removing head lamp

### 2. Head light aiming adjustment and adjusting values (unladen condition)

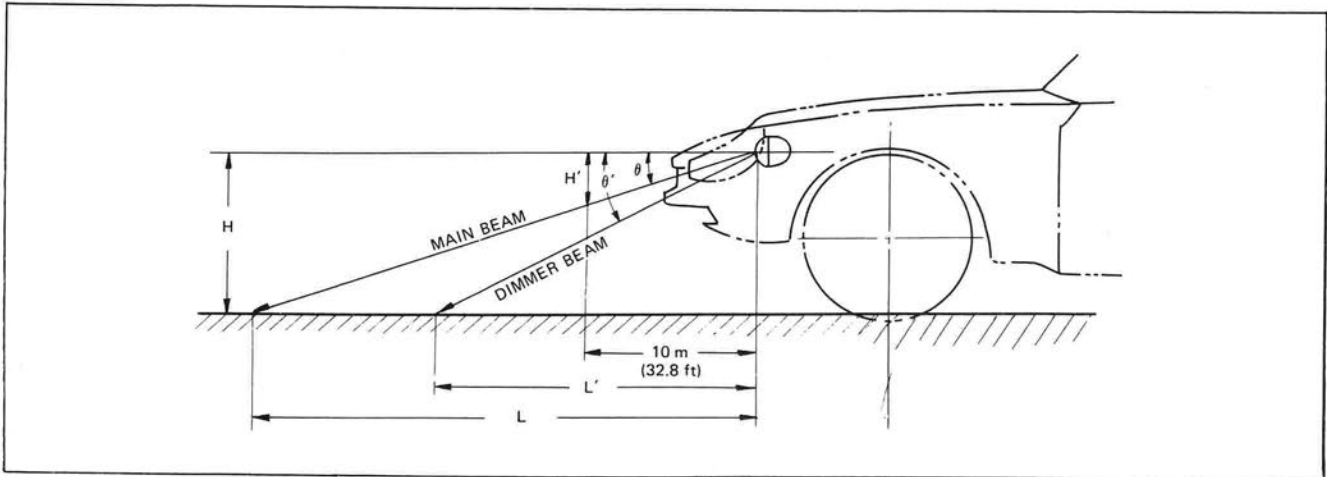


Fig. BE-5 Adjusting head light aiming

#### Adjusting values

Dimensions/Angle	Values to which adjusted
H	622.0 mm (24.5 in)
$\theta$	45°
$\theta'$	1°35'
L	47.5 m (155.5 ft)
L'	22.5 m (73.8 ft)
H'	130.9 mm (5.15 in)

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### FRONT PARKING / TURN SIGNAL LAMP

Territory	Bulb capacity		Lens color
	Turn signal lamp	Parking lamp	
Ordinary	23W	7W	White
U.S.A. Canada	23W	7W	Amber

#### Replacing bulb:

Turn the socket from the rear side, and remove it.

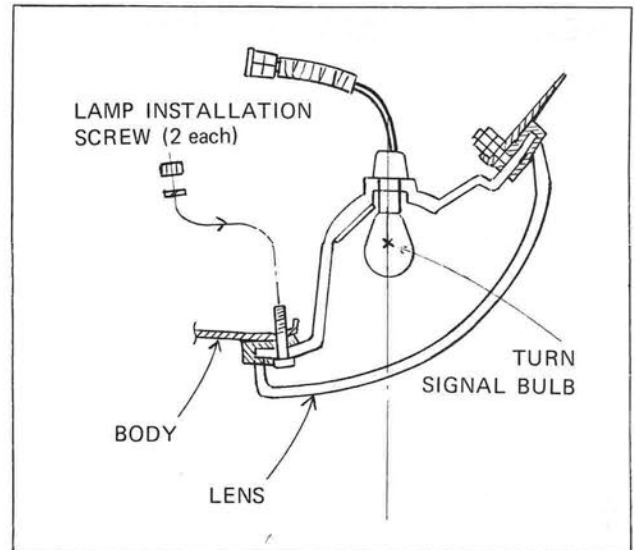


Fig. BE-6 Replacing front parking/turn signal lamp

### LICENSE PLATE LAMP

#### Replacing the bulb:

Remove the lamp cover after removing three set screws.

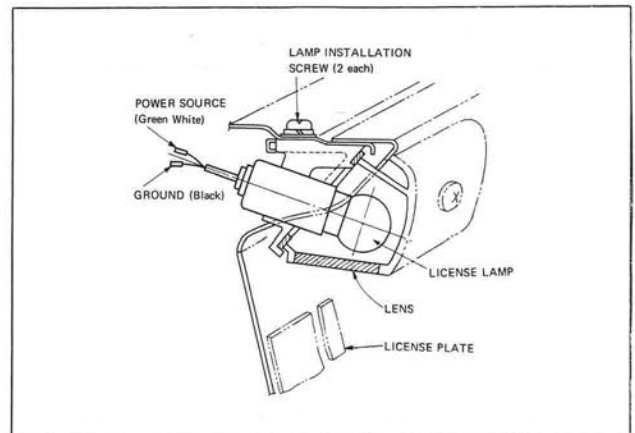
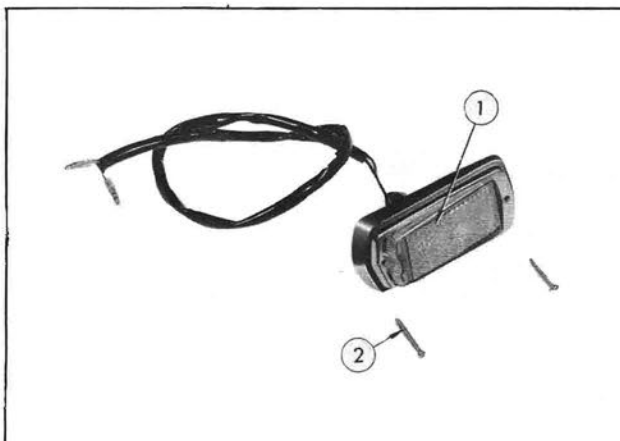


Fig. BE-7 License plate lamp installation

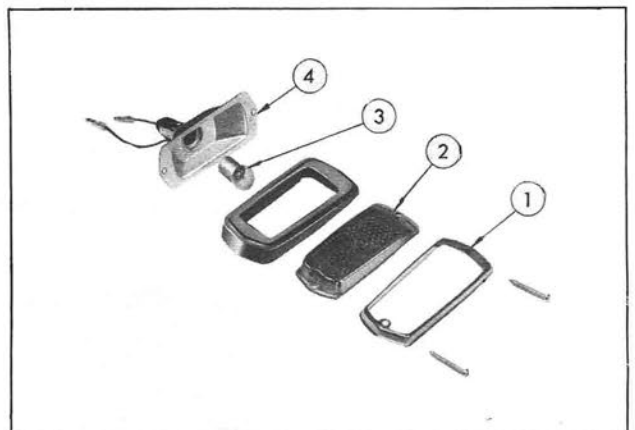
### SIDE MARKER REFLEX REFLECTOR (For U.S.A., CANADA)

Front and rear ..... 7.5W



1	Lens	2	Set screw
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Fig. BE-8 Front side marker lamp



1	Limb	3	Bulb Adapter
2	Lens (Red)	4	Adapter

Fig. BE-9 Rear side marker lamp



## BODY

### REAR COMBINATION LAMPS

#### Specification

Rear combination lamp	Bulb capacity
Tail lamp	7W
Stop lamp	23W
Turn signal lamp	23W
Back up lamp	23W

#### Replacing bulb

Remove the rear panel trim (secured with plastic rivets in eight places), replace the bulb from the rear side of the socket.

#### Replacing the rear combination lamp assembly

Remove the finisher from the outside of the body, remove eight rear combination lamp installation

screws, and remove the rear combination lamp assembly.

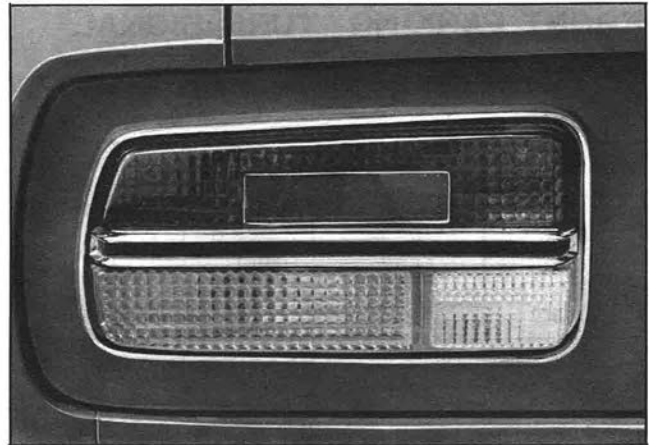


Fig. BE-10 Rear combination lamp

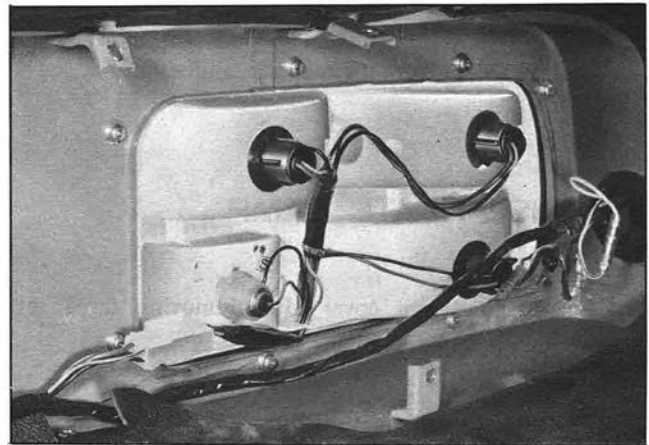


Fig. BE-11 Replacing rear combination lamp bulb

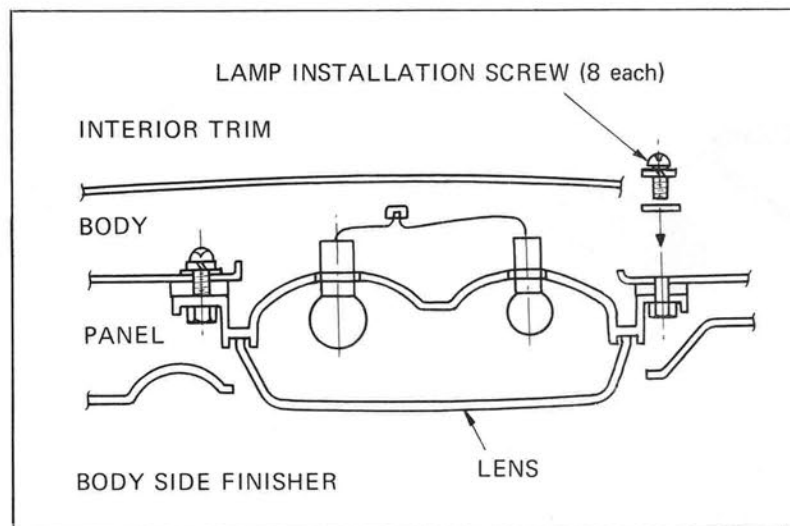


Fig. BE-12 Installing rear combination lamp assembly

# BODY ELECTRICAL

## METERS

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### SPEEDOMETER



Fig. BE-13 Speedometer

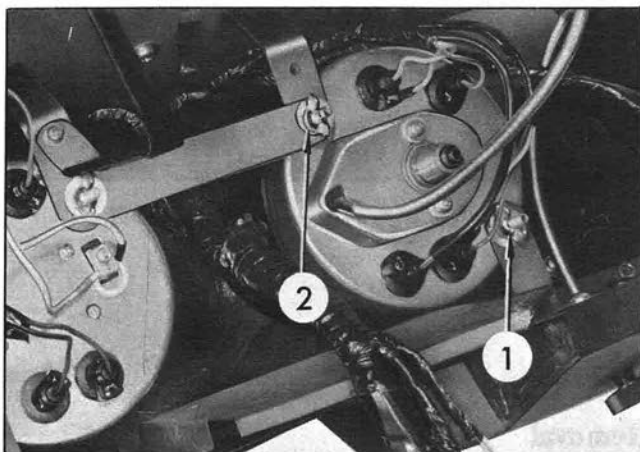


Fig. BE-14 Removing speedometer

### Removal

Loosen the wing nuts on the meter brackets [① and ② in Figure BE-14 ] on the upper and lower sides of the reverse side of the speedometer, and withdraw the speedometer from the instrument panel.

**Note:** a. When loosening the wing nuts, use a pair of pliers.

b. In order to facilitate the operation, remove the heater air duct.

c. See Figure BE-15 for details of the speedometer support bracket and mounting bracket.

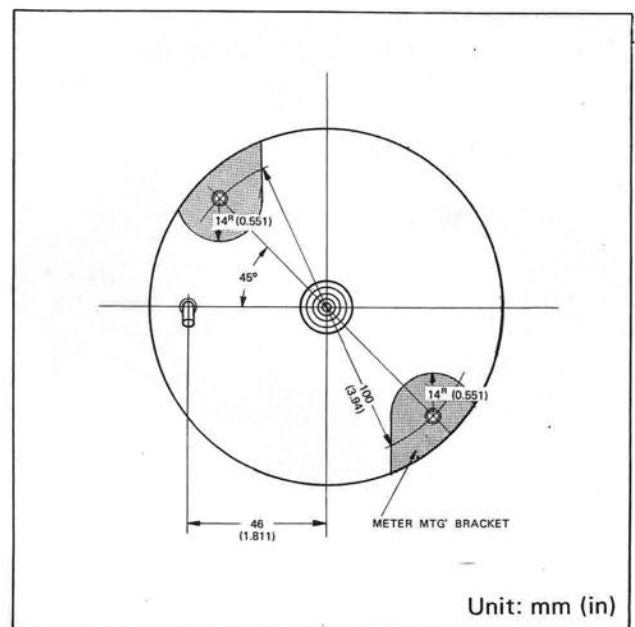


Fig. BE-15 Details of speedometer installation brackets

## BODY

### TACHOMETER

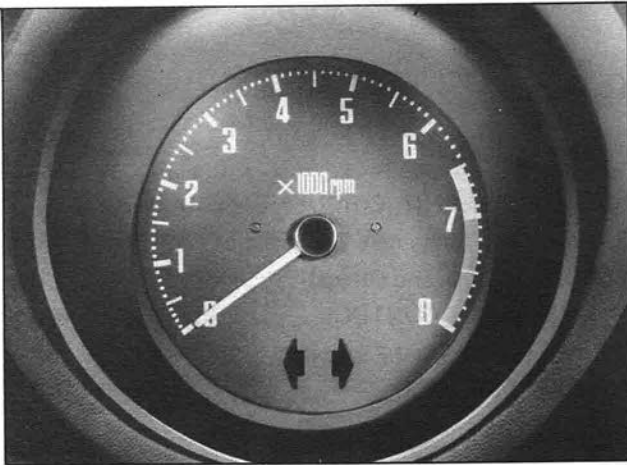


Fig. BE-16 Tachometer

Yellow zone: 6,500 to 7,000 rpm  
Red zone: 7,000 to 8,000 rpm

(Engine rpm: Indicated in range 0 to 8000 rpm)

### Removal

Remove the tachometer in the same manner as for the speedometer.

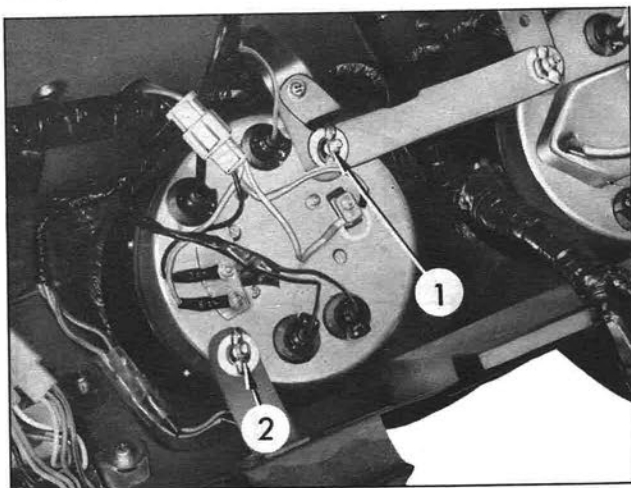


Fig. BE-17

Note: See Figure BE-17 for details of the tachometer support bracket and mounting bracket.

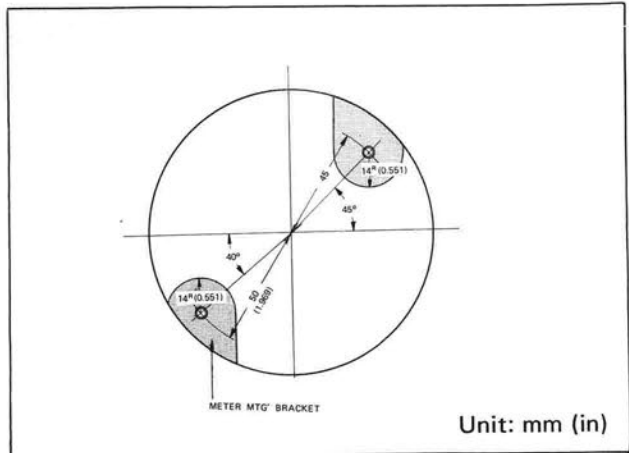


Fig. BE-18 Details of tachometer installation brackets

### WATER TEMPERATURE GAUGE OIL PRESSURE GAUGE

The water temperature gauge and oil pressure gauge are combined. The water temperature gauge indicates water temperature in range from 120 to 250°F, and oil pressure gauge indicates oil pressure in range from 0 to 140 lb/sq in. A voltage regulator (meter regulator) is built in the meter unit to compensate thermal effect.



Fig. BE-19 Water temperature gauge and oil pressure gauge

### Removal

1. Remove the center console finisher.

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2. Inserting hand into the opening where the center console finisher has been removed, loosen hexagonal cross-headed screws [① and ② in Figure BE-21] use pair of pliers, and remove the unit from the reverse side of the instrument panel.

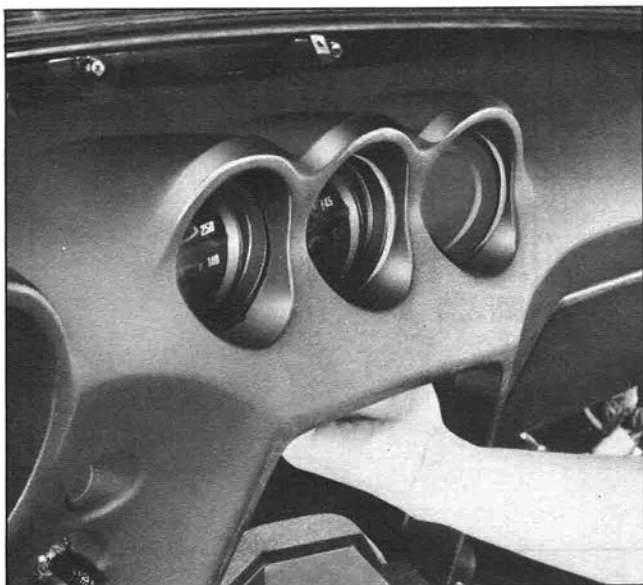


Fig. BE-20 Removing center console finisher

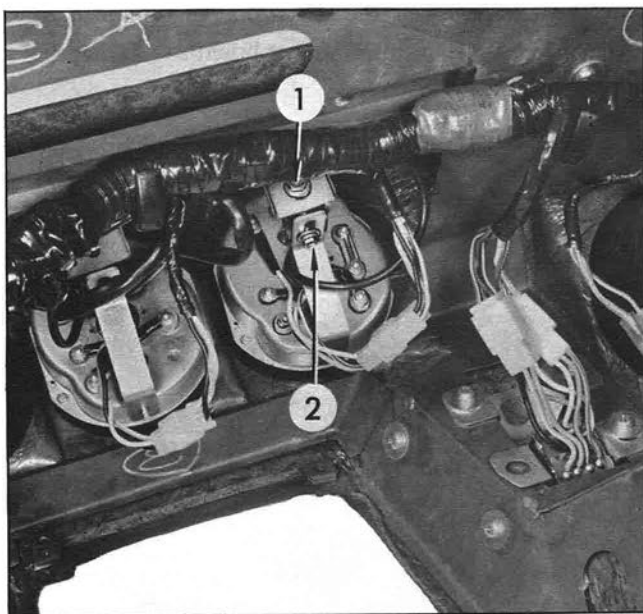


Fig. BE-21 Removing water temperature gauge and oil pressure gauge

### AMMETER AND FUEL GAUGE

The ammeter and fuel gauge are combined to a single unit. The ammeter indicates in range from -45 to +45A. "E" and "F" marks on the fuel gauge represent respectively "Empty" [5 liters (18.9 US gal, 122.7 Imp gal)] and "Full" [60 liters (227 US gal, 273 Imp gal)].



Fig. BE-22 Ammeter and fuel gauge

### Removal

Remove the ammeter and fuel gauge unit in the same manner as for the oil pressure gauge and water temperature gauge. To be more specifically, when removing the ammeter and fuel gauge unit, remove the meter bracket, and remove hexagonal cross-headed screws [① and ② in Figure BE-23] from reverse side of the meter.



Fig. BE-23 Removing ammeter and fuel gauge

## BODY

### INSTRUMENT UNIT CIRCUIT DIAGRAM

(Speedometer, Tachometer, Ammeter, Oil Pressure Gauge and Others)

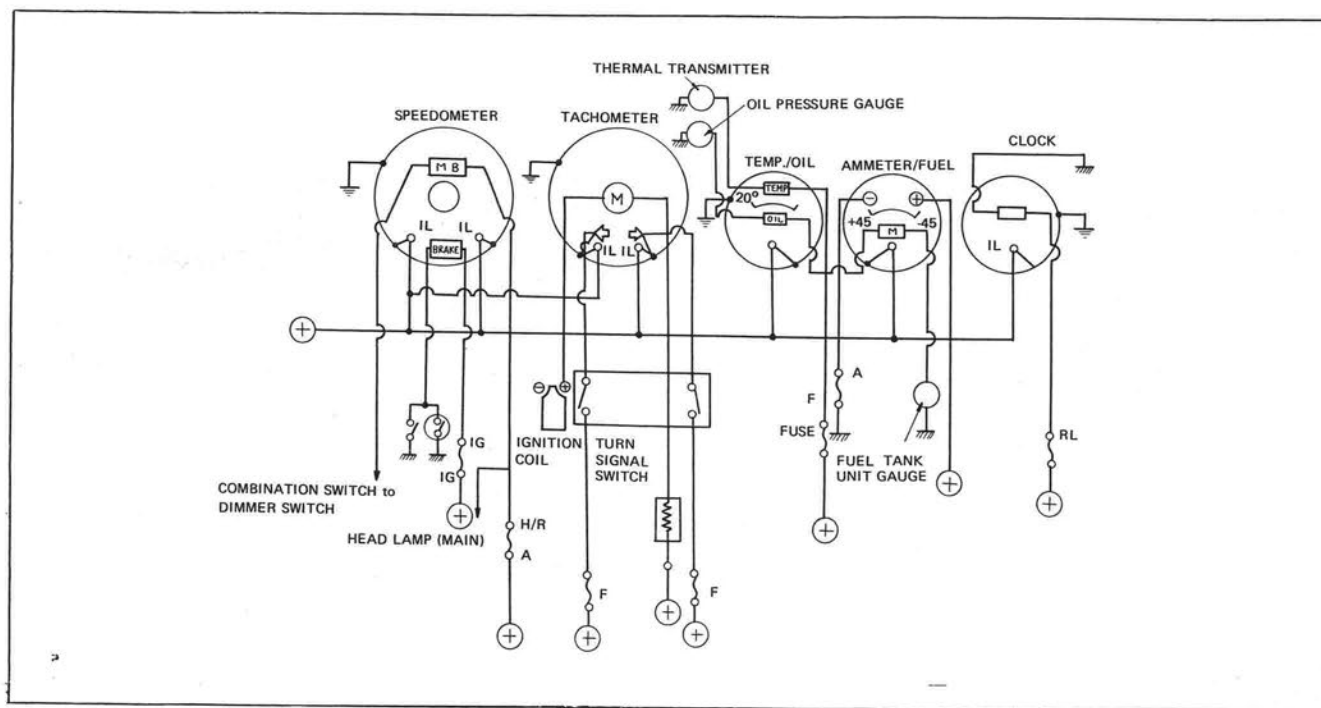


Fig. BE-24 Circuit diagram of instrument unit

### ILLUMINATION CONTROL

The illumination control is a variable resistor

(Rheostat) with which the meter illumination can be controlled (none step) to get proper brightness so that the meters can be seen clearly.

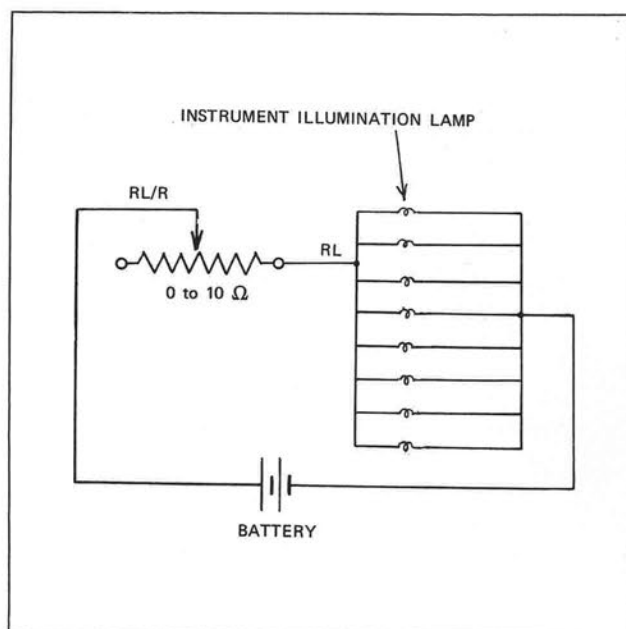


Fig. BE-25 Circuit diagram of illumination control

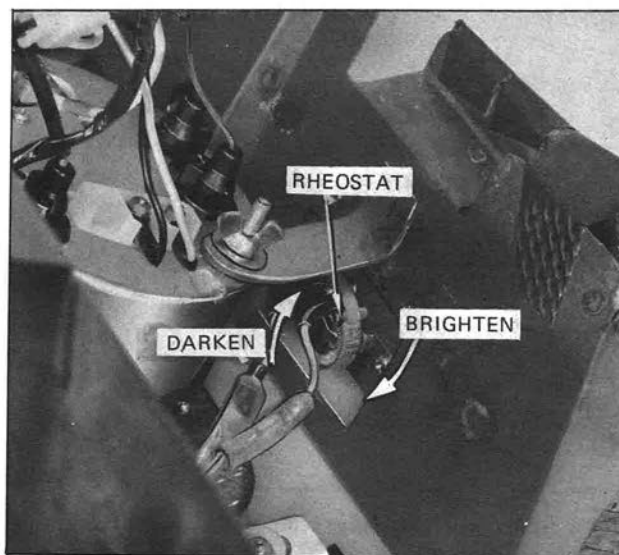


Fig. BE-26 Removing illumination control

## BODY ELECTRICAL

### TROUBLE DIAGNOSES AND CORRECTIONS

#### Speedometer

Troubles	Possible causes	Method of inspection	Corrective action
Both pointer and odometer do not operate.	Faulty speedometer cable union nut tightening	Check the union nut for tightness.	Retighten the union nut.
	Broken speedometer cable	Check the speedometer cable.	Replace the cable
	Damaged speedometer drive gear	Check the drive gear	Replace the drive gear and pinion assembly.
	Defective speedometer	Remove the speedometer unit, and check.	Replace the meter unit.
	Rusted cable	Make sure that the cable is rusted.	Replace the cable.
Pointer deflects excessively.	Improperly installed speedometer cable (bent excessively)	Check the cable for installing condition.	Correct bending radius to more than 100 mm (3.9 in).
	Broken speedometer cable	Check the cable for condition.	Replace the cable.
	Damaged speedometer drive gear	Check the drive gear.	Replace the drive gear/pinion assembly.
	Defective speedometer	Remove the speedometer unit, and check.	Check and replace if required.
Pointer unstable.	Improperly tightened speedometer union nut	Check the union nut for tightening condition.	Retighten or repair if required.
	Defective speedometer cable	Check the speedometer cable.	Replace cable.
	Damaged speedometer drive gear	Check the drive gear.	Replace speedometer unit.
	Defective speedometer	Remove and check the speedometer unit.	
Unusual noise	Excessively bent speedometer cable, lack of lubricant, or twisted speedometer cable.	Check the cable for excessive bending.	Replace the cable.
	Defective speedometer		Replace the meter.



## BODY

### Water temperature gauge

Even the switch is turned on, the pointer does not operate.	Blown off fuse	Check the fuse.	Replace if blown off.
	Defective thermal transmitter	Apply a test lamp (approximately 12V-3W) using DC12V in series to the lead wire yellow/white) which connected to the thermal transmitter, and ground another wire from the test lamp. Then pointer deflects.	Replace the thermal transmitter.
	Defective meter unit or faulty wiring	When above described inspection is conducted and the pointer still does not operate, remove the meter unit, connect the unit with a test lamp (12V-3W) in series, and apply DC12V. <ul style="list-style-type: none"> <li>o If the pointer deflects;</li> <li>o If the pointer does not deflect;</li> </ul>	Repair the wiring. Replace the meter unit.

### Fuel gauge

When the source switch is closed, the pointer does not operate.	Blown off fuse	Defective tank unit grounding	Replace if blown off.
	Defective meter unit or wiring	<p>Defective tank unit grounding</p> <p>Apply a test lamp (12V-3W) using DC12V to the tank unit lead wire in series and ground the tank, then pointer deflects.</p> <p>When above described inspection is conducted and the meter pointer does not deflect, remove the meter unit, apply a test lamp (12V-3W) to the unit in series, and apply DC12V.</p> <ul style="list-style-type: none"> <li>o The pointer deflects to "F".</li> <li>o The pointer does not deflect after repairing.</li> </ul>	<p>Correct the wiring.</p> <p>Replace the meter unit.</p>
The pointer indicates a point constantly regardless of actual fuel level.	Defective tank unit	When the lead wire to the tank is disconnected at the tank unit terminal, the pointer returns to "E".	Replace tank unit.

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	Defective meter unit or wiring	<p>When the above described inspection is conducted and the pointer of the meter still does not deflect, remove the meter unit, apply a test lamp (12V-3W) to the unit in series, and apply DC12V.</p> <ul style="list-style-type: none"> <li>o The pointer deflects to "F".</li> <li>o The pointer does not deflect.</li> </ul>	<p>Correct the wiring.</p> <p>Replace the meter unit.</p>
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### Ammeter

Improper indication	Lack of alternator capacity (45A)	Measure the alternator charging voltage	Repair the voltage regulator/alternator.
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## WINDSHIELD WIPER

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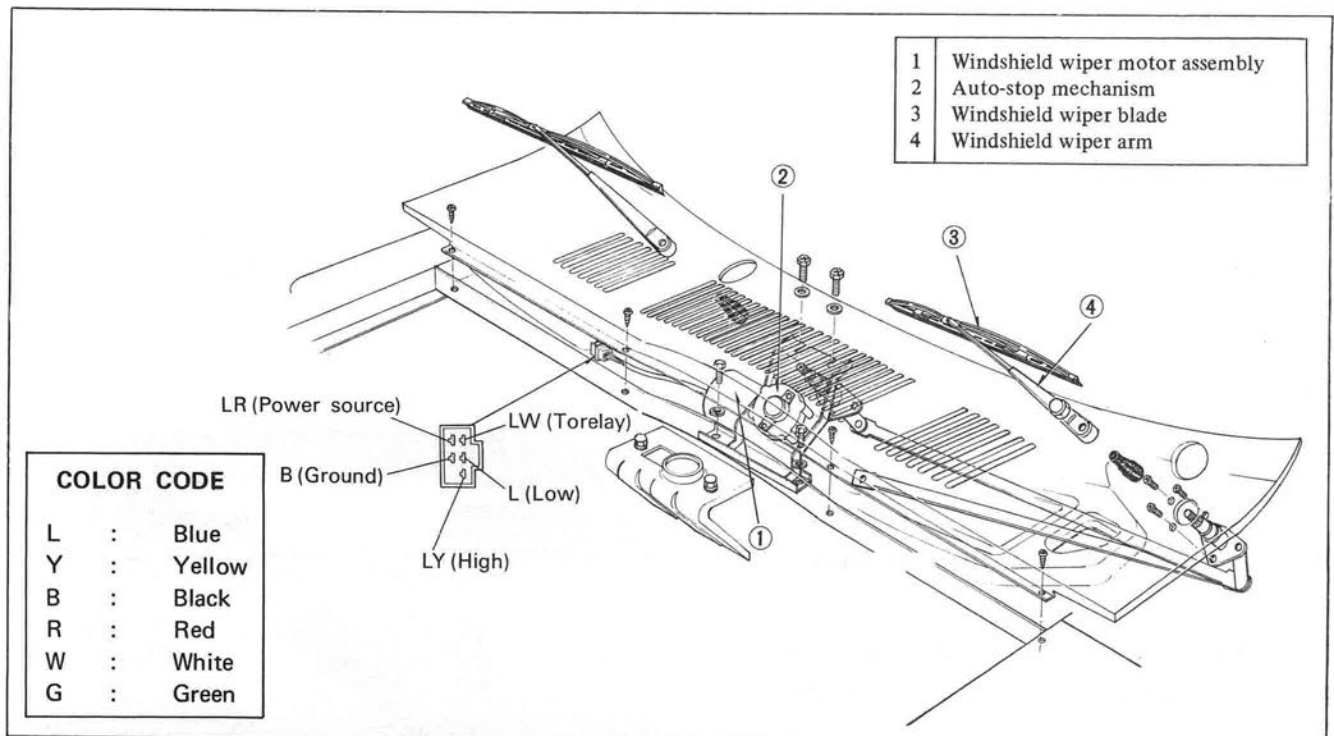


Fig. BE-27 Structure of windshield wiper

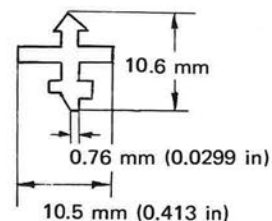


## BODY

### Main specifications

Wiping system	Parallel interlock system (tandem type)	
Wiping angle	86° (Driver side)	96° (Assistant side)
Rise-up angle	4° 30' (Driver side)	5° 30' (Assistant side)
Blade length	460 mm (18 in)	
Arm installation method	Tapered serration	

Cross-sectional view of blade rubber:



### Motor performance

Item	Specification	
Rated voltage	12V	
Test voltage	13.5V	
Starting voltage	Less than 8V	
Unloaded speed	LOW	HIGH
Unloaded current	56 rpm Less than 2.5A	78 rpm Less than 2.5A
10 kg-cm (8.7 in-lb) loaded speed	52 rpm	68 rpm
loaded current	Less than 3A	Less than 3.5A
40 kg-cm (34.7 in-lb) loaded speed	40 rpm	50 rpm
loaded current	Less than 6A	Less than 7.5A
Locking torque	135 kg-cm (117.2 in-lb) or greater	125 kg-cm (108.5 in-lb) or greater
Locking current	Less than 25A	Less than 25A

### Windshield wiper installing position

Install the windshield wiper blade in such a position that the blade comes into contact with the weather strip upper line lightly.

Tighten the windshield wiper blade arm lock nut under 80 to 100 kg-cm (70 to 87 in-lb) tightening torque.

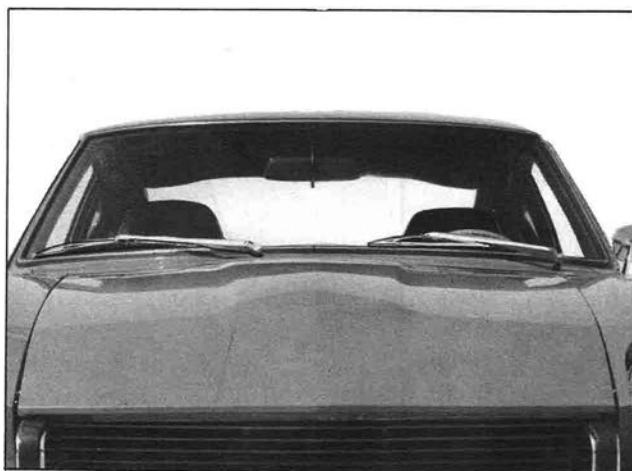


Fig. BE-28

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## Windshield wiper motor connecting diagram

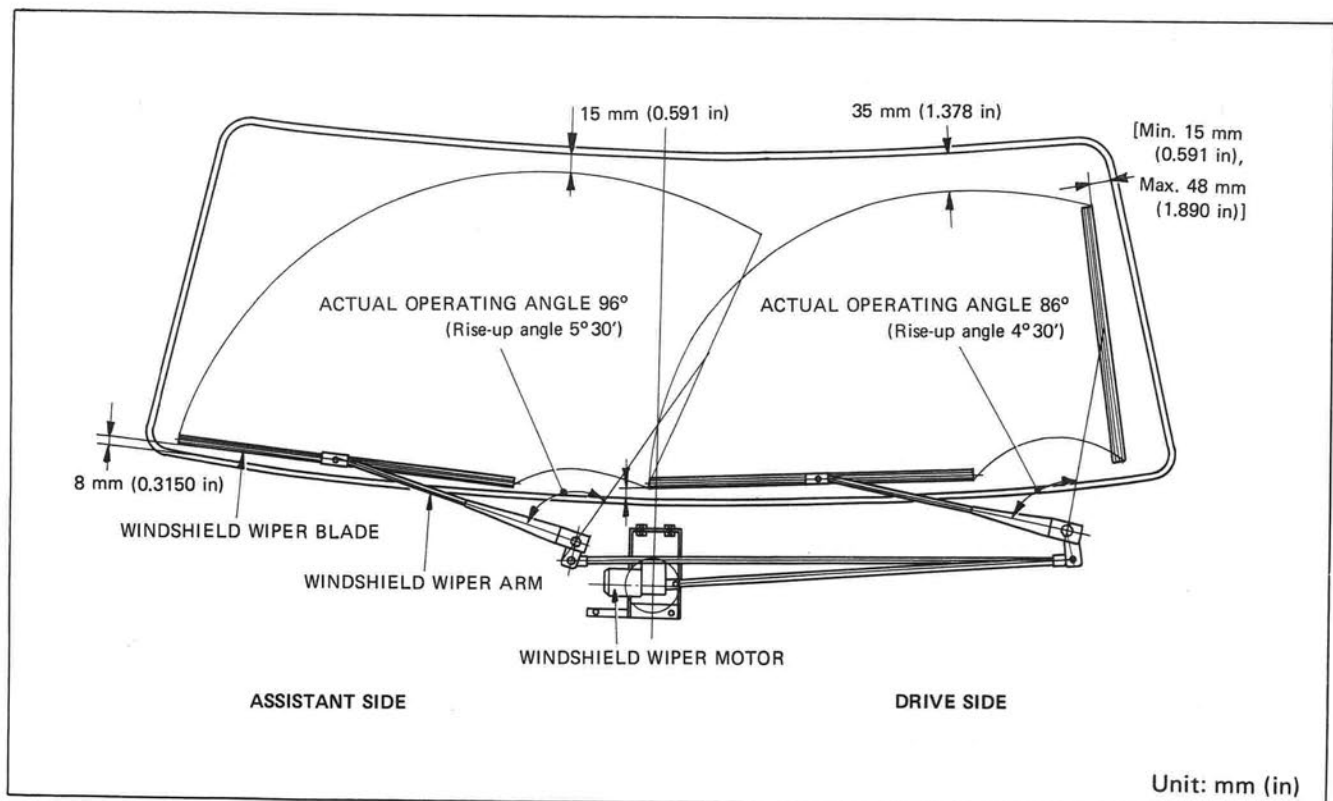
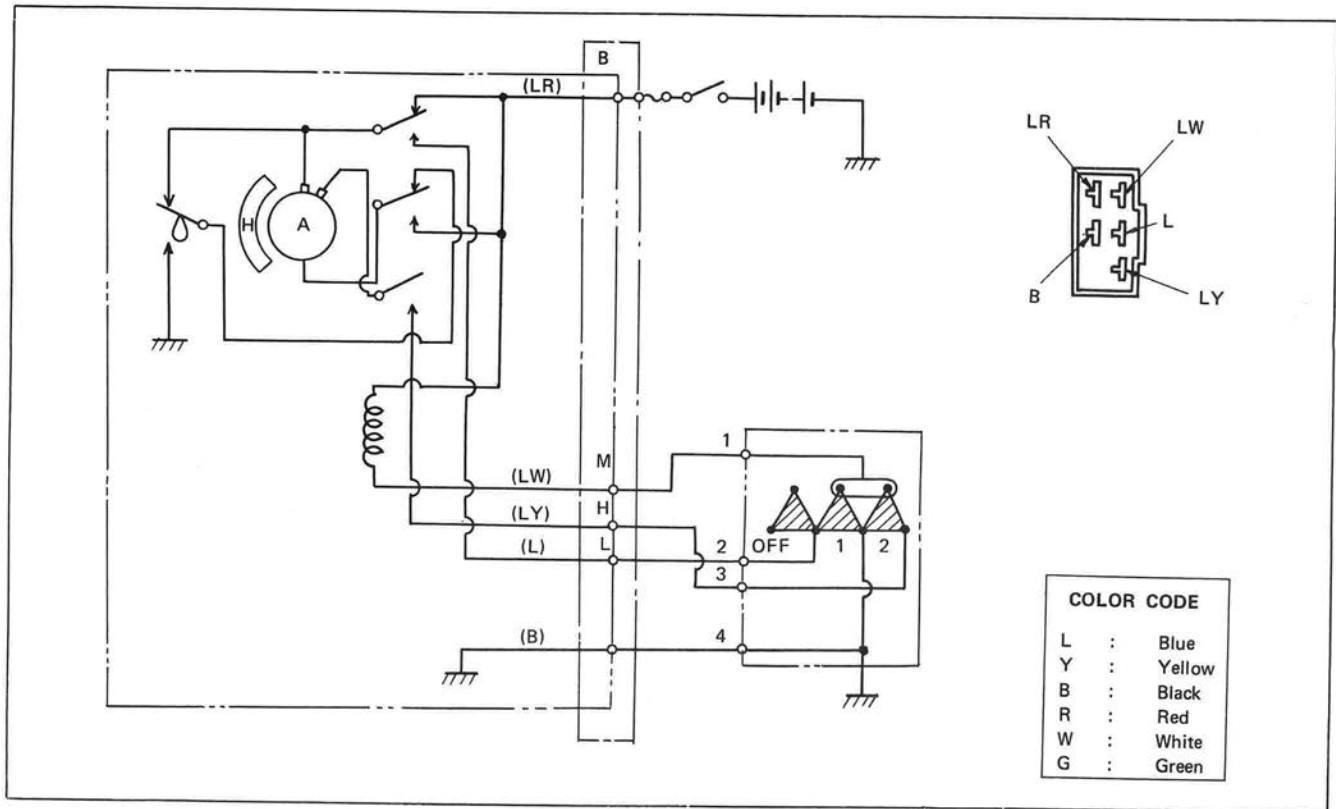


Fig. BE-29 Wiper blade operating range

## BODY

# WINDSHIELD WASHER

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## REMOVAL

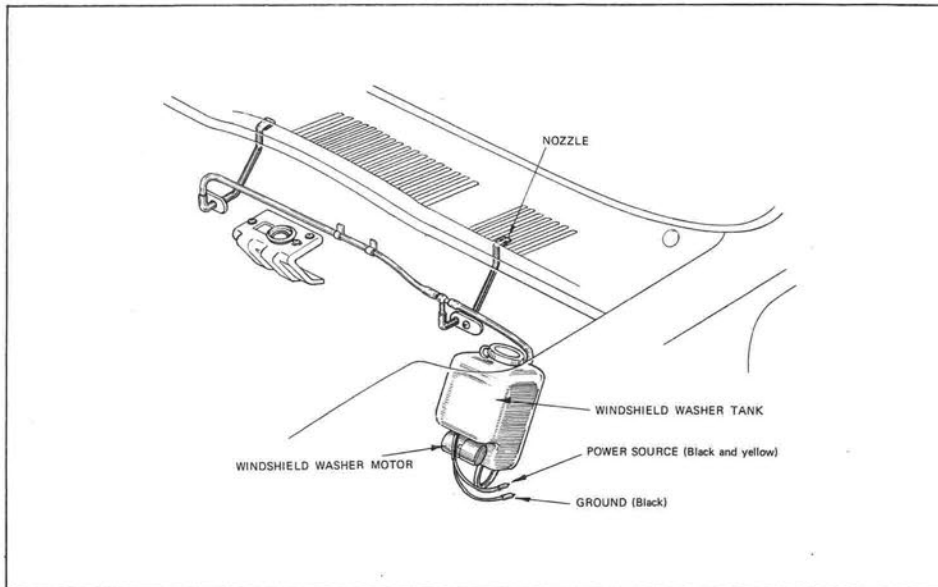


Fig. BE-30 Structural view of windshield washer

## Adjusting washer nozzle

When reassembling washer nozzle or washer fluid is not sprayed properly, adjust the nozzle direction using a pair of pliers so that fluid is sprayed in range indicated by asterisk mark (\*) in Figure BE-31.

Washer tank capacity 1.5 liters (3.96 US gal, 3.30 Imp gal).

## Precautions for usage of washer

Do not operate the windshield washer continuously for longer than 30 seconds or without fluid. (When the windshield washer is operated incorrectly, malfunction will result.)

Ordinarily, limit operating time within 10 seconds.

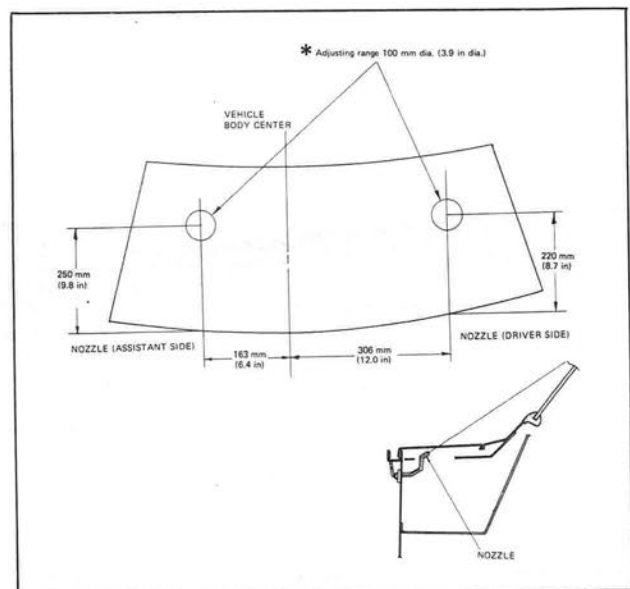


Fig. BE-31 Adjusting washer nozzle

## BODY ELECTRICAL

### TROUBLE DIAGNOSES AND CORRECTIONS

Troubles		Possible causes	Method of inspection	Corrective action
Fluid does not come out.	No motor operating sound	Blown off fuse	Check the fuse box.	Replace fuse if required.
		Improper contact of each lead wire joint	Check the motor unit and switch unit for proper joint contact.	Correct if required.
		Defective washer motor	Connect (+) and (-) terminals of the battery respectively to motor lead wires (blue) and (blue/red) with separate cables, and see if the motor operates. If not, the motor is defective.	Replace the motor with a new one.
Fluid does not come out.	Motor operating sound is audible	Incorrect piping	With the windshield washer switch turned on, measure voltage between two motor lead wires, and if the battery voltage is not detected, check the individual joints.	Correct.
		Lack of washer fluid	Check fluid level in tank.	Refill fluid.
The windshield washer does not stop.		Defective switch.	With the windshield washer switch turned off, check the circuit between the wiper switch (yellow/blue) and (black) terminals for continuity. If there is continuity, the switch is defective.	Replace the switch with a new one.
		Short circuit.	Check wiring.	Repair wiring.

## SWITCH

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## COMBINATION SWITCH

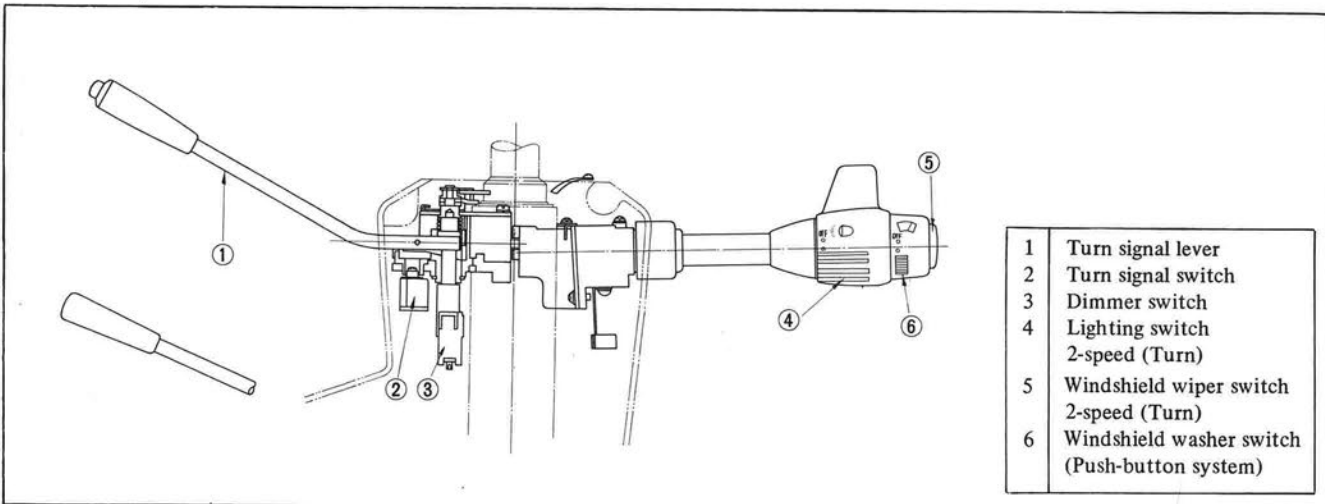


Fig. BE-32 Structural view of combination switch

The combination switch is split into two compartments; one consists of lighting switch, wiper switch,

and windshield washer switch, and the other consists of turn signal switch and dimmer switch.

### Each switch operating force

Turn signal switch	0.2 to 0.6 kg (0.44 to 1.32 lb)
Dimmer switch	0.3 to 0.8 kg (0.66 to 1.76 lb)
Windshield wiper switch	1 to 3.3 kg (2.2 to 7.3 .b)
Passing switch	0.2 to 0.6 kg (0.44 to 1.32 lb)
Lighting switch	0.2 to 0.6 kg (0.44 to 1.32 lb)
Windshield washer switch	0.7 to 1.3 kg (1.54 to 2.87 lb)

### Combination switch connection circuit

#### (1) Lighting/windshield wiper switch side

#### Conjunction table of Lighting Switch:

Terminal Lever position	Battery	parking lamp	Dimmer switch	Earth
OFF				
First step	6.1A			
Second step	6.1A		9.2A	

#### Conjunction of Wiper Switch:

Terminal Lever position	High	Low	Medium	Earth
OFF				
First step		5A	5A	
Second step		5A	5A	

Fig. BE-33

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### (2) Turn signal lever side

Conjunction table of Dimmer Switch:

Terminal Lever position	Earth	Main switch	Dimmer switch
Main switch	○ — 9.2A — ○		
Dimmer switch	○ — 9.2A — ○		

Conjunction table of Turn Signal Switch :

Terminal Lever position	Flasher	Stop switch	Front left	Front right	Rear left	Rear right
Left	○ — 2.2A — ○		○ — 5.8A — ○			
Neutral		○ — 5.8A — ○			○ — 5.8A — ○	
Right	○ — 2.2A — ○		○ — 5.8A — ○			

Fig. BE-34

## HAZARD SWITCH

This switch is a tumbler switch. When removing, remove the installation screw from the switch boss portion.

When removing, use the tumbler switch replacer (special tool ST08900000).

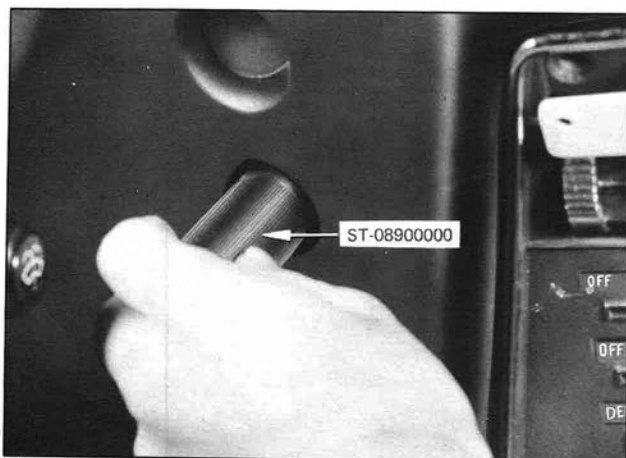


Fig. BE-35

## STEERING LOCK

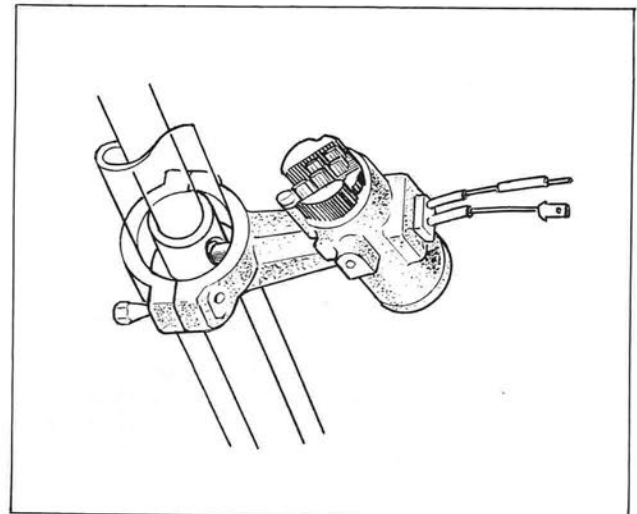


Fig. BE-36 Steering lock

The steering lock is combined with the ignition switch to a single unit which contains warning buzzer micro-switch for reminding the drive to lock the steering. The microswitch is connected to a warning buzzer.

## BODY

### WARNING BUZZER

(It operates if the door is unlocked with the key inserted in the steering lock)

The warning buzzer is installed on the steering support. When removing the warning buzzer, disconnect steering lock side microswitch cables, and remove two warning buzzer installation screws.

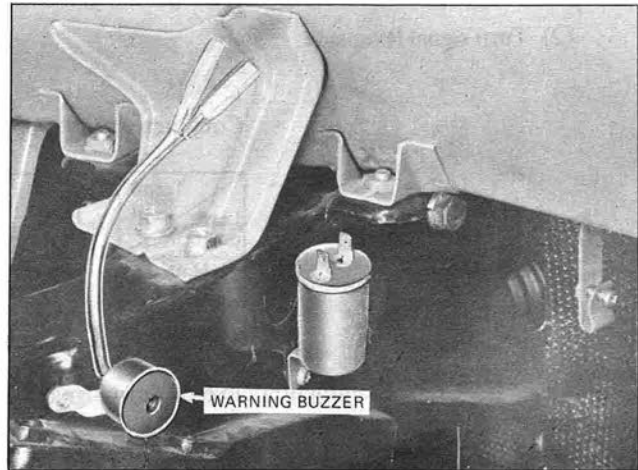


Fig. BE-37 Removing warning buzzer

## HORN AND HORN RELAY

### CONTENTS

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CORRECTION ..... BE-23

Adjusting horn volume ..... BE-23

The horn is installed on the top of front crossmember. High tone horn is installed in the driver side and low tone

horn is installed in the assistant side facing toward front. The horn relay is installed on the left side dash side panel.

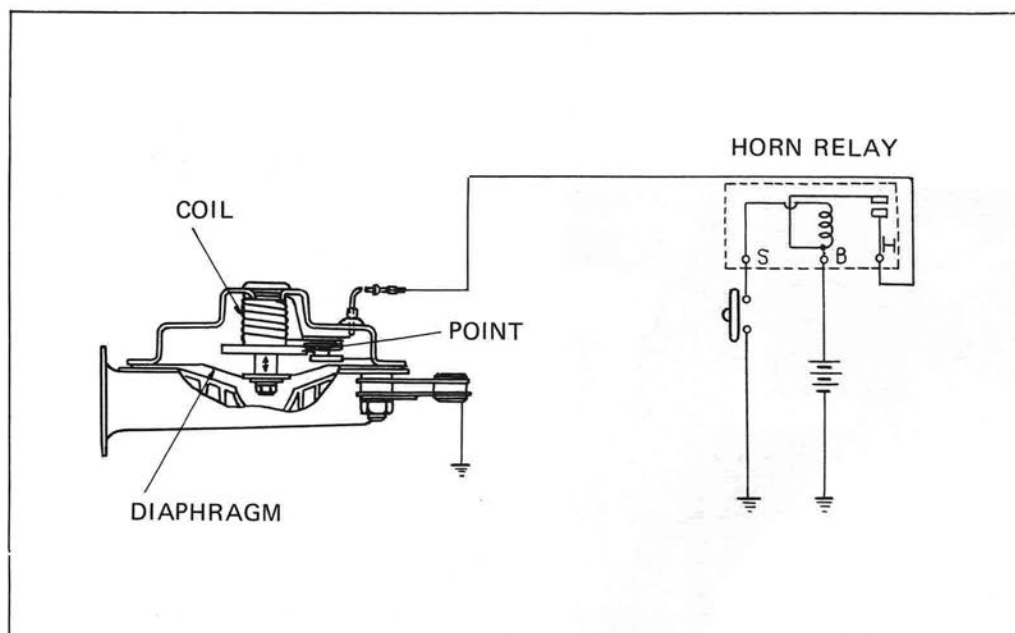


Fig. BE-38 Horn and horn relay circuit diagram

## BODY ELECTRICAL

### Adjusting horn volume

1. Apply voltage meter and connect cables as shown in Figure BE-39.
2. Turn on the switch, make sure that the voltmeter indicates 12 to 12.5V, and adjust as described below so that the ammeter indicates approximately 3A.
3. Lock nut in reverse side of the body
  - (1) Turn the lock nut in counterclockwise .....Volume and current increases.
  - (2) Turn the lock nut in clockwise ..... Volume and current reduces.
4. When a proper volume is obtained through the above described method, raise the voltage to 14 or 15V, and further adjust the volume to better sound.
5. A proper sound obtained at range from 12 to 15V is the best adjusting point.  
Lock the nut at that position.

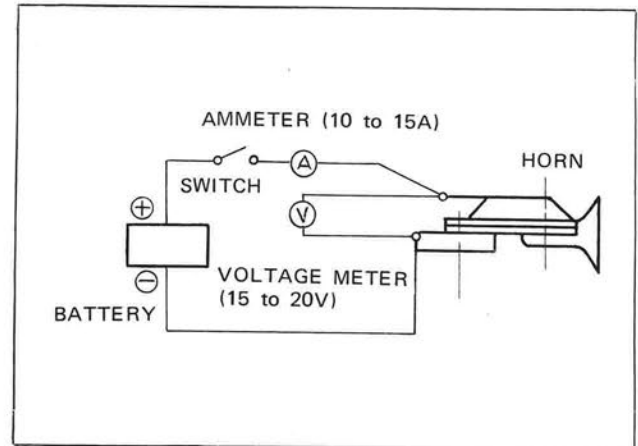


Fig. BE-39 Circuit diagram of horn

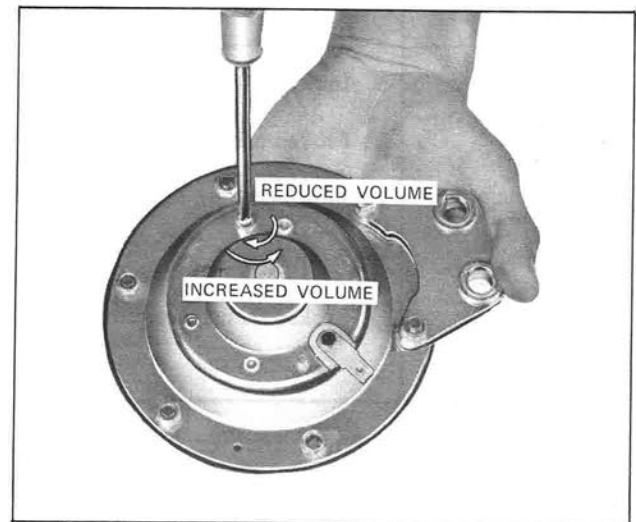


Fig. BE-40 Adjusting horn volume

### TROUBLE DIAGNOSES AND CORRECTIONS

Troubles	Possible causes	Method of inspection	Corrective action
The horn does not operate.	Excessively discharged battery	Measure specific gravity of electrolyte.	Charge if discharged.
	<p>The battery is normal.</p> <p>Broken lead wire between horn relay (S) terminal and horn button.</p>	The horn does not sound although the horn relay terminal (S) is grounded, but sounds when the terminals (B) and (H) are short-circuited.	



## BODY

	<ul style="list-style-type: none"> <li>. Improper horn button contact</li> <li>. Defective horn relay</li> <li>. Defective horn</li> <li>. Blown off fuse</li> </ul>	<p>The horn does not sound although the horn relay terminals (B) and (H) are short-circuited, and the horn still does not sound although the battery (+) terminal is connected to the horn terminal directly.</p> <p>When the horn sounds through the above inspection, check the fuse for wear, fusing, or improper contact.</p>	Replace.
The horn sounds continuously.	<ul style="list-style-type: none"> <li>. Defective horn relay</li> <li>. Short-circuited horn button and horn relay terminal (S).</li> </ul>	<p>The horn does not stop although the horn relay (S) terminal is disconnected.</p> <p>When the horn stops through the above disconnection, check the horn button unit particularly carefully.</p>	<p>Replace horn relay.</p> <p>Replace horn button (Switch).</p>
Reduced volume and/or tone quality	<ul style="list-style-type: none"> <li>. Improper fuse wire contact</li> <li>. Broken cable</li> <li>. Improper horn button contact</li> <li>. Worn horn point</li> <li>. Broken resistance circuit cable</li> </ul>		<p>Correct.</p> <p>Repair.</p> <p>Repair.</p> <p>Adjust or replace.</p> <p>Replace the resistance with a new one.</p>

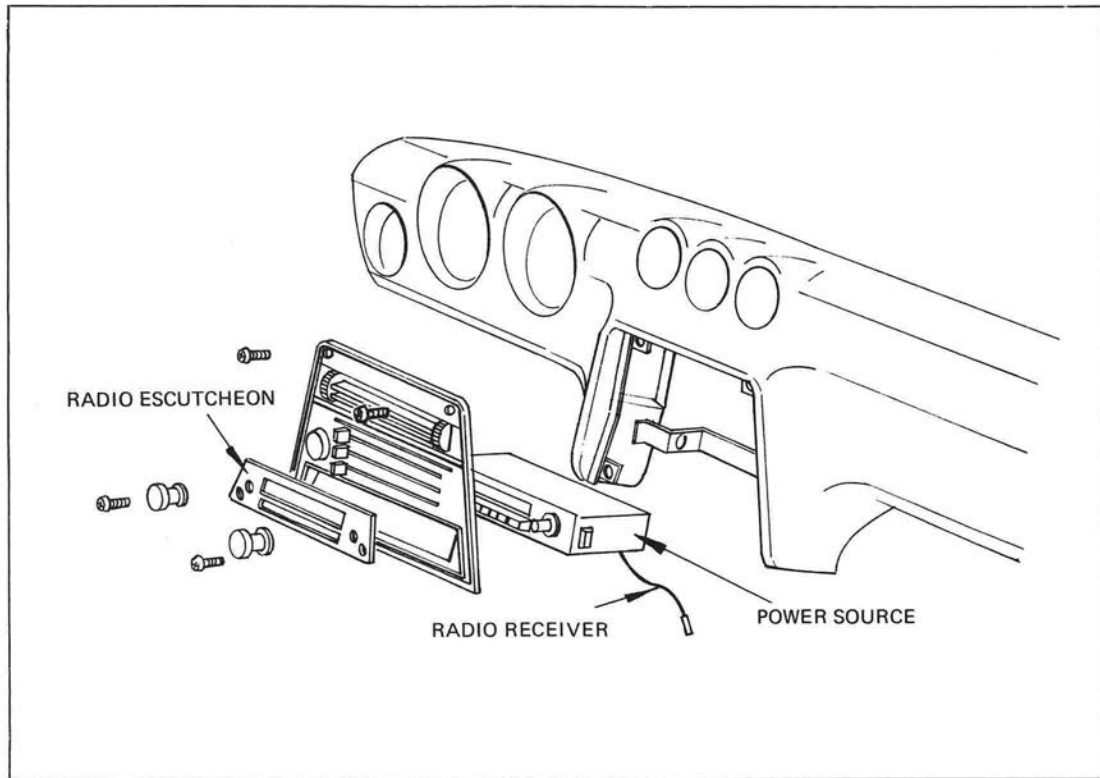
## RADIO

### CONTENTS

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Radio specifications .....	BE-25
Installing speaker .....	BE-26

Installing antenna .....	BE-26
Antenna specifications .....	BE-27
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## BODY ELECTRICAL



*Fig. BE-41 Structural view of radio*

The radio receiver proper is a special unit designed for the Model S30 vehicles. The radio receiver unit is fitted into the instrument console box in flush.

The speaker is fitted into the left of the rear side inner. The antenna is a power-drive antenna, and the length is 1,020 mm (40.5 in) when fully extended.

For the detail of Radio refer to "All transistor car Radio MODEL TM-1081ZA service manual" which is

published by Hitachi, Ltd.

### Installation

When installing the radio receiver proper, first, install the radio on the instrument console finisher, and fit it into the instrument console. The radio manufacturer is Hitachi, Ltd.

### Radio specifications

Model .....	TM-1081ZA
Manufacturer .....	Hitachi, Ltd.
Receiving system .....	AM
Circuit system .....	Superheterodyne
Receiving frequency .....	535 to 1,605 KC
Intermediate frequency .....	455 KC

## BODY

Maximum sensitivity .....	Less than 20 db
Maximum output .....	6W
Speaker .....	130 mm (5.12 in) PM Type (Impedance: 4 $\Omega$ )
Rated current .....	90 mA
Rated voltage .....	12V (–) grounded
Used transistors .....	10 transistors, 5 diodes, and 2 thermistor

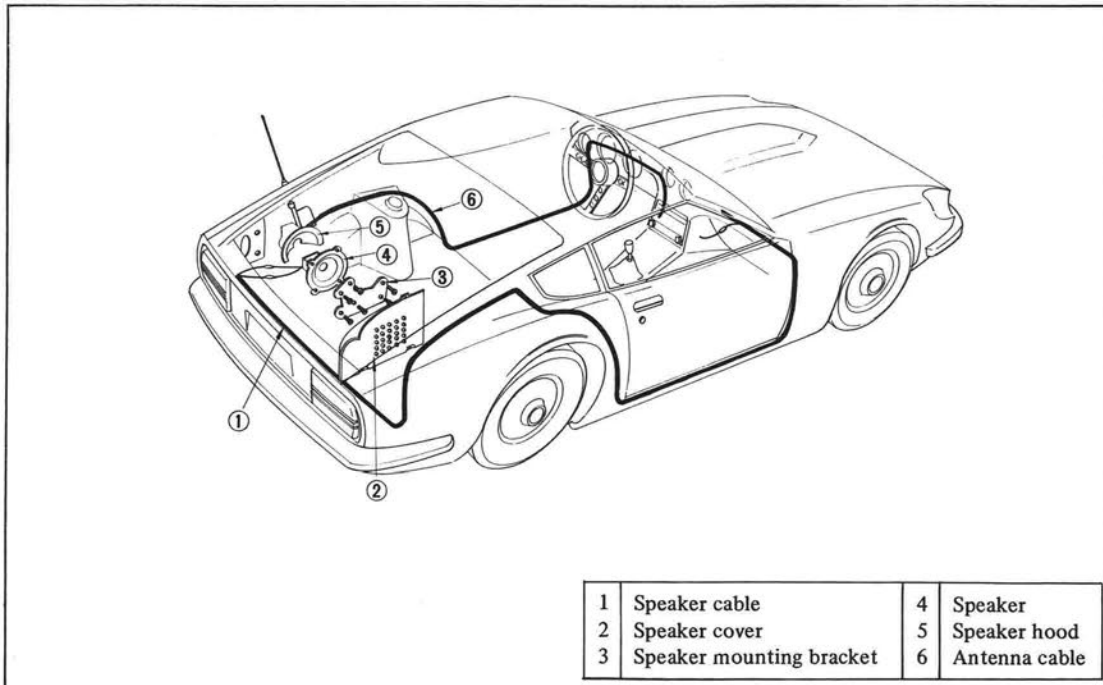


Fig. BE-42 Installing speaker and antenna

### Installing antenna

First, install the speaker main unit and speaker hood on the speaker mounting bracket. With the speaker installed on the bracket, install the speaker mounting bracket on the body.

### Installing speaker

1. Insert the antenna into the antenna installation hole on the left side rear fender from the passenger compartment side.
2. Install the antenna mounting bracket on the body side.
3. Install the antenna upper unit from the outside of the rear fender.

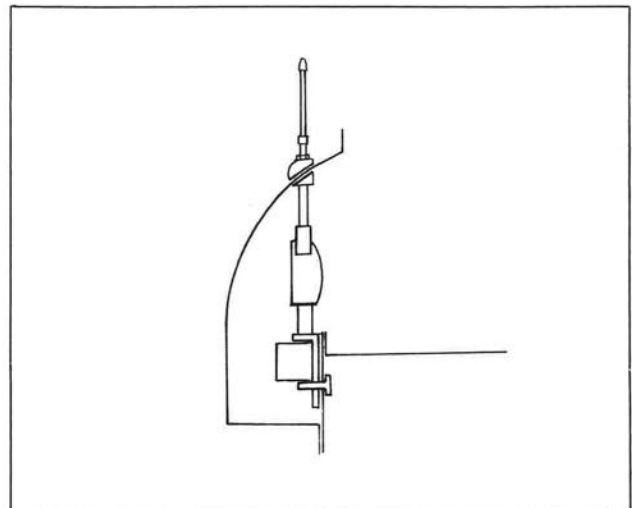


Fig. BE-43 Installing antenna

# BODY ELECTRICAL

## Antenna specifications

Rated voltage	12V (–) grounded
Rated current	Less than 6A
Operating voltage range	10.5 to 16.0V (Starting voltage: 9V)
Locking current	Less than 6A
Model	RO-74

## Auto-antenna switch circuit

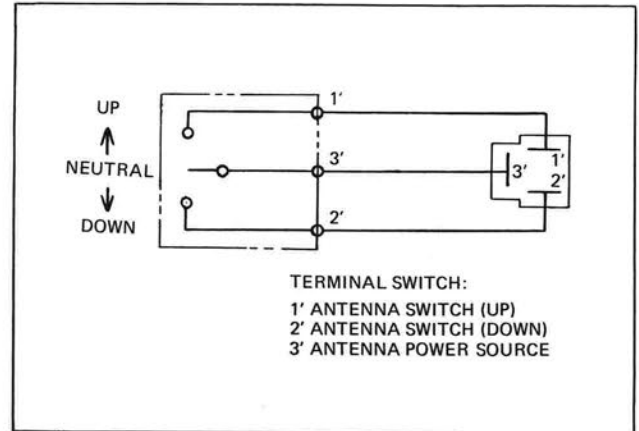


Fig. BE-44 Circuit diagram of auto-antenna

# CLOCK

## CONTENTS

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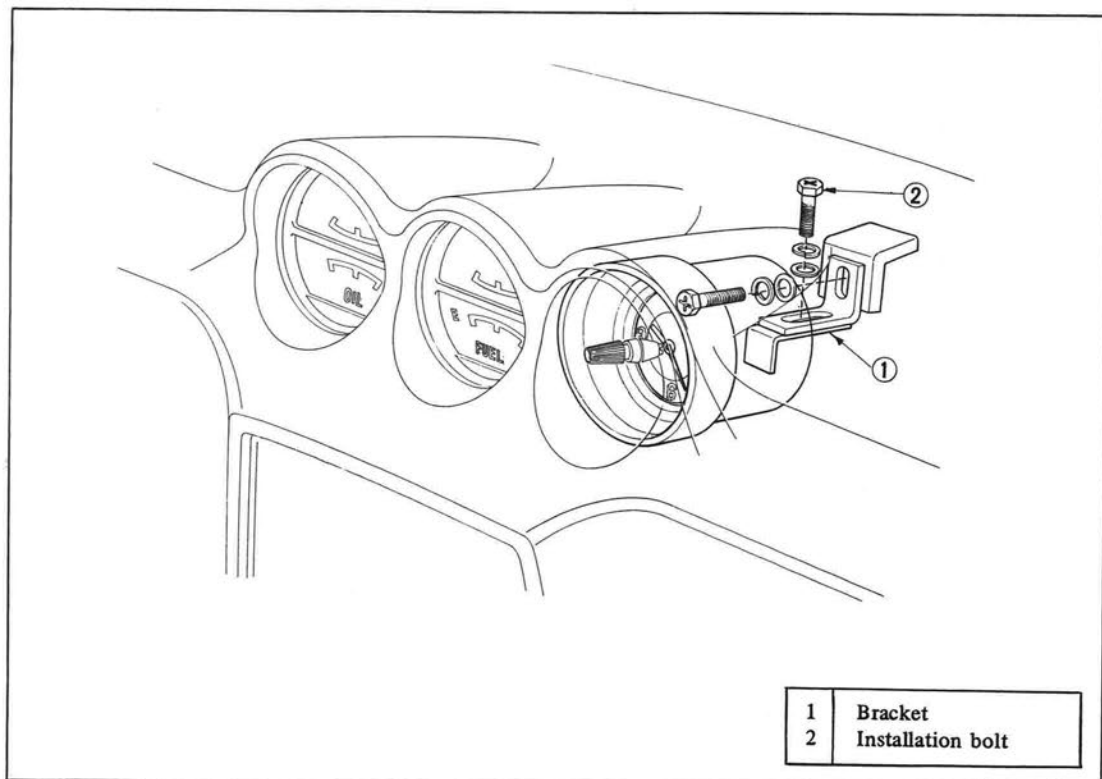


Fig. BE-45 Installing clock

## BODY

### Installation

1. Remove the center console finisher.
2. Remove the radio mask, and install the clock thereon.
3. Secure the radio bracket on the L-shape bracket in the instrument panel side with screws.

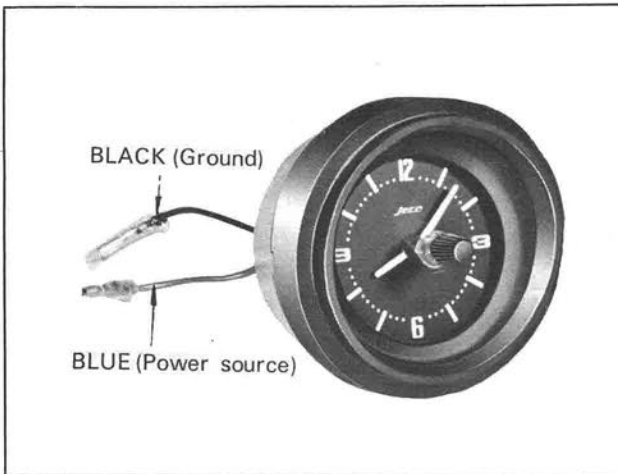


Fig. BE-46 Clock

### Adjusting clock

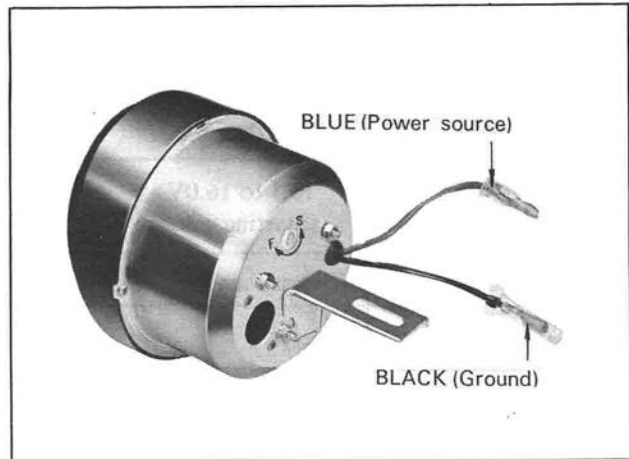


Fig. BE-47 Adjusting clock

Remove the vinyl cover, and adjust the adjusting screw shown in the above figure. When the adjusting screw is turned to "F", the clock gain and retard when turned to "S".

Recommend the adjustment be not made unless the clock is out of order considerably.

Be sure to reinstall the vinyl cover after adjustment. (The vinyl cover protects the clock from dust and other foreign matters.)

## SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

BODY ELECTRICAL.

**SERVICE JOURNAL OR BULLETIN REFERENCE**[illegible]

BODY
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**SERVICE JOURNAL OR BULLETIN REFERENCE**

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